

Serial No.: 09/902,429

REMARKS

Claims 1-27 are pending in the application. Claims 1-14 and 22-27 are presenting under consideration. Favorable reconsideration of the application is respectfully requested.

I. WITHDRAWAL OF PREVIOUS REJECTIONS

Applicants note with appreciation the withdrawal of the previous rejections of claims 1-14 and 22-27.

II. REJECTION OF CLAIMS 1-14 AND 22-27 UNDER 35 USC §102(b)

Claims 1-14 and 22-27 stand rejected under 35 USC §102(b) based on *Thapar et al.* This rejection is respectfully traversed for at least the following reasons.

i. Claims 1 and 8

Claim 1 describes a transistor structure that includes a central channel region, source region, and drain region of a first semiconductor. In addition, the transistor structure has a gate adjacent the channel region. The gate includes including the first semiconductor *and* a second semiconductor with an energy gap greater than the first semiconductor. Similarly, claim 8 describes a silicon on insulator transistor structure in which the central channel region, source region and drain region are of a first semiconductor. The gate, on the other hand, includes a first semiconductor *and* a second semiconductor with an energy gap greater than the first semiconductor.

Serial No.: 09/902,429

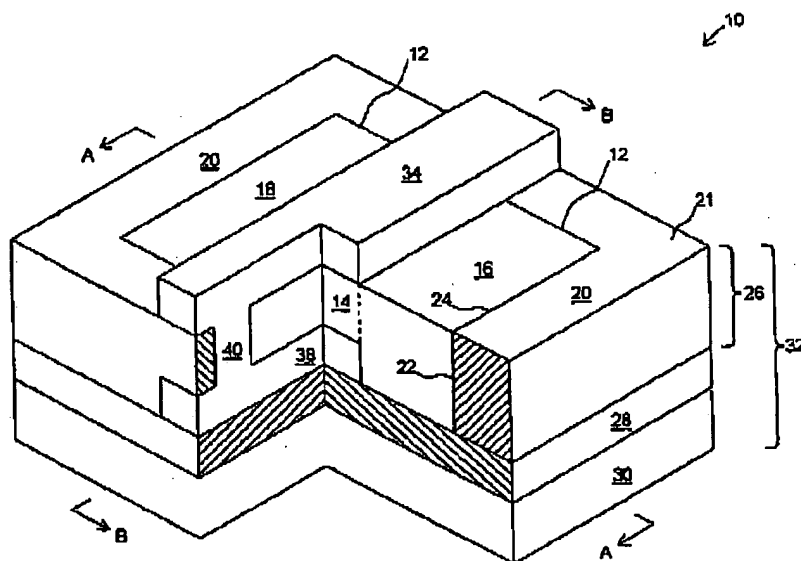


Fig 1. of Present Application

For example, the present application describes the transistor structure as having a central channel region 14 formed of silicon. (See Fig. 1 reproduced above). The gates 34 and 38, on the other hand, are formed of silicon and carbon (in the form of silicon carbide). Thus, the gates in the transistor structure of the present invention are made of a first and second semiconductor with an energy gap greater than the first semiconductor alone of the central channel region.

ii. *Thapar et al.*

Thapar et al. describes a static-induction transistor having heterojunction gates. However, *Thapar et al.* does not teach or suggest a transistor structure in which a central channel region, source region and drain region are of a first semiconductor; and the gate, on the other hand, includes a first semiconductor and a second semiconductor with an energy gap greater than the first semiconductor. Accordingly, *Thapar et al.* does not teach each and every feature of the invention as set forth in claims 1 and 8. Withdrawal of the rejection is therefore respectfully requested.

Serial No.: 09/902,429

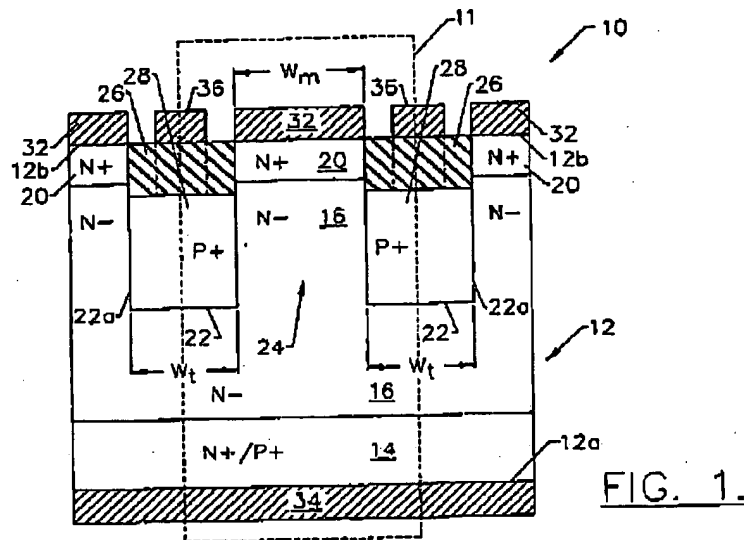


Fig. 1 of Thapar et al.

As is shown in Fig. 1 of *Thapar et al.* (reproduced above), a drift region 16, source region 20 and drain region 14 are made of a first semiconductor material and second semiconductor material in the form of silicon carbide. (See, e.g., Col. 4, Ins. 60-66). The gate regions 28, on the other hand, are made simply of a first semiconductor material in the form of silicon. (See, e.g., Col. 5, Ins. 32-33).

In other words, *Thapar et al.* teaches directly opposite the invention recited in claims 1 and 8. *Thapar et al.* teaches that the drift region, source region and drain region are made of a first semiconductor and a second semiconductor having an energy gap greater than the first semiconductor from which the gate is made. The present invention, on the other hand, calls for a gate made of a first semiconductor and a second semiconductor having an energy gap greater than the first semiconductor from which the central channel region, source region and drain region are made. Thus, withdrawal of the rejection is respectfully requested.

Serial No.: 09/902,429

iii. Remaining Claims

The remaining claims may be distinguished over *Thapar et al.* for at least the same reasons recited above in connection with claims 1 and 8 from which they depend, as well as based on the particular features recited therein.

For example, claims 3, 4, 10 and 11 specifically recite the composition of the gate and channel regions. Such construction is directly opposite the teachings of *Thapar et al.*

Claims 24 and 27 refer to a conductive via electrically coupling the gate to a backgate. *Thapar et al.* does not teach or suggest any such conductive via.

Claim 25 refers to the gate extending the entire length of the channel region between the source region and the drain region. There is no such gate in *Thapar et al.* extending the entire length between the source 20 and drain 14.

As a result, withdrawal of the rejection of the dependent claims is also respectfully requested.

III. CONCLUSION

Accordingly, all claims 1-14 and 22-27 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

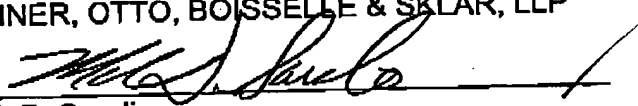
Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Serial No.: 09/902,429

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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DATE: October 10, 2003

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